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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/693,014	10/23/2003	Vlad Ocher	1663. 1-22	9338

24243 7590 03/25/2005

CHARMASSON & BUCHACA & LEACH LLP  
1545 HOTEL CIRCLE SOUTH  
SUITE 150  
SAN DIEGO, CA 92108-3412

EXAMINER

JENKINS, DANIEL J

ART UNIT	PAPER NUMBER
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1742

DATE MAILED: 03/25/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/693,014

Applicant(s)

OCHER ET AL

Examiner

Daniel J. Jenkins

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 26 April 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 5/18/04.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

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1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 1-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mravic et al. in view of Held et al. and Keyes.

Mravic et al. discloses at col. 5, line 59 to col. 6, line 22, the invention substantially as claimed. Mravic et al. discloses a method of forming a projectile comprising:

providing a powder mixture of W and Cu;

pressing the powder mixture; and

sintering the pressed powder mixture to form an article.

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Mravic et al. discloses wherein the projectile is a shape charged liner (last sentence of Abstract).

However, Mravic et al. does not disclose wherein a final coining step is made to form the finished shape charge liner, and provides only examples of bullet projectile shape finishing.

Held et al. teaches that in forming more complex shapes such as shaped charge liners, a post sintering step may be included, including finish-forming to the desired shape (col. 2, lines 8-15), including repressing which reads upon coining.

It would have been obvious to one having ordinary skill in the art modify the teaching of Mravic et al. teaches by adding a final coining processing step in order to arrive at a more complicated shape of a shaped charge liner.

However, Mravic et al. does not disclose wherein the W and Cu powders are agglomerated prior to pressing, but only discloses blending (col. 4, lines 21-26).

Keyes teaches to agglomerate powders of different characteristics, including hard and ductile metal components, in order to improve flowability of the powders for press form loading.

It would have been obvious to one having ordinary skill in the art at the time of the invention to agglomerate the powders of Mravic et al. as taught by Keyes in order to improve the flowability of the powder in compact processing.

Mravic et al. is silent as to the type of pressing which is used to compact the metal powders, but tap-molding is a well known method of metal powder compression.

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Mravic et al. discloses sintering at 900°C, whereas claim 8 requires a sintering temperature of between 1090°C and 1230°C.

Held further teaches, that in the case of shaped charge liners, the sintering temperature should be above the melting point of the Cu component in order to improve the density and strength of the liner and therefor improve penetrability (col. 2, lines 8-20).


It would have been obvious to one having ordinary skill in the art that the invention of Mravic et al. can be modified by the teaching of Held by sintering above the melting point of Cu (1083°C) in order to improve the penetrability of the liner, the specific range of temperature determined by the melting point of the specific copper alloy selected.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel J. Jenkins whose telephone number is 571-272-1242. The examiner can normally be reached on M-TH6:30AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on 571-272-1242. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Daniel J. Jenkins  
Primary Examiner  
Art Unit 1742

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